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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/962,700	11/30/97	CALDWELL	J 97020

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EXAMINER
LORENZO, J

ART UNIT	PAPER NUMBER
1734	

DATE MAILED: 11/10/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
08/962,700

Applicant(s)
J. Michael Caldwell

Examiner
Jerry A. Lorengo

Group Art Unit
1734



☒ Responsive to communication(s) filed on Aug 25, 1999

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire three (3) month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1 and 133-197 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1 and 133-197 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

(1)

Claim Rejections - 35 USC § 102

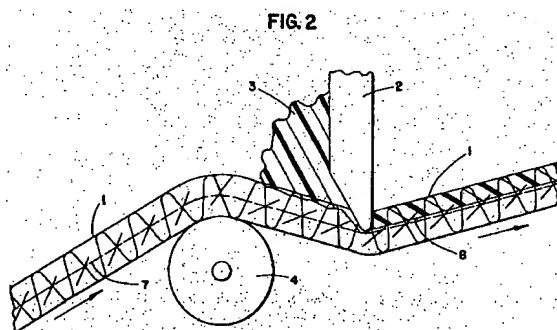
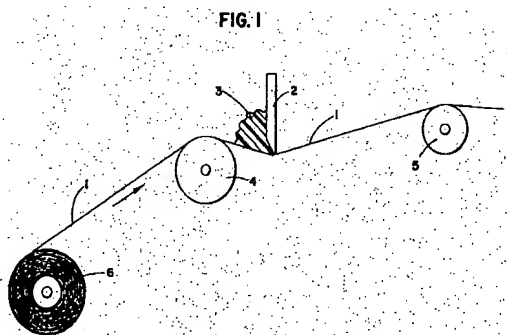
The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 133-140, 143, 144, 146-154, 160-165, 179-183, 185, and 188-197 rejected under 35 U.S.C. 102(b) as being anticipated by Caldwell et al.

Caldwell et al. discloses a method and apparatus for the placement of a polymer (water-swellaable elastomer) into a porous (breathable fabric) web. The applicant should note that all fabric webs have a three-dimensional structure. With reference to the figures below, Caldwell et al. discloses that the application or placement of a polymer composition into a porous web is accomplished by using a floating knife coater. Figure 1 shows the fabric being removed from a storage roll 6 over a roll 4 which supports the viscous solution of elastomer (polymer) 3. The knife 2 is shown as depressing the fabric 1 as it spreads and forces the polymer 3 into the fabric (column 11, lines 59-65).



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Caldwell et al. discloses that Figure 2 is an enlarged diagrammatic illustration showing a cross-sectional view of the fabric 1 as it is impregnated with the polymeric material. The open angle on coating knife 2 is shown as metering a thin layer of elastomer solution 3 onto the surface of the fabric 1. The knife 2 also compresses the fabric 1 and forces the elastomer 3 to be deposited in the fabric 1 above the center plane 7 (column 11, lines 66-74).

Most interestingly, Caldwell et al. discloses that it is readily realized that by adjusting the blade angle, fabric tension, elastomer solution solids and viscosity, and rate of fabric movement that varying amounts of elastomer can be deposited within any volume of the fabric. Other methods of applying the elastomer present special problems but the principal is essentially the same as described above (column 11, lines 74-75; column 12, lines 1-6).

Caldwell et al. discloses that after the elastomer is applied to the fabric in a suitable solvent, curing is accomplished by heat. This heating can be done in autoclaves, festoon ovens, or continuous roll ovens. The exact time and temperature required for adequate cure depends upon the elastomer, the fabric, and the curing system (column 12, lines 7-12).

Caldwell et al. discloses the polymeric coating itself is made predominantly of a polymer in solvent followed by the addition of additives such as curing agents, pigments, plasticizers, or inhibitors. He also discloses the amount of coating applied by any technique is dependent upon the nature of the fabric being treated, the nature of the elastomer being applied, and the degree of air permeability which is desired (column 9, lines 49-71).

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(2)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 167-172 are rejected under 35 U.S.C. 103(a) as being unpatentable over Caldwell et al.

Although Caldwell et al., in section (1), above, discloses the general method and apparatus for the placement of a polymer composition into a porous web, he does not specifically disclose that the web movement is supplied by a nip formed by two counter-rotating rollers

However, it would have been obvious to one of ordinary skill in the art to supply the web movement with a nip formed by two counter-rotating rollers motivated by the fact that such nip drives are well known in the art. Furthermore, it would have been obvious to one of ordinary skill in the art to supply either one or both of the rollers with a rubber or metal surface motivated by the fact that the roller surface determines the degree of friction that the nip can bestow upon the web being driven.

(3)

Claims 142, 145, 155-159, and 187 are rejected under 35 U.S.C. 103(a) as being unpatentable over Caldwell et al., as set forth in sections (1) and (2), above, in further view of Linscott.

Although Caldwell, as set forth in section (1), and (2), above, discloses an apparatus for the placement of a polymer composition into a porous web he does not specifically disclose that the apparatus utilizes two or more blades spaced apart from one another which are utilized in the placement of the polymer into the porous web.

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Linscott, however, in his method and apparatus for impregnating fibrous sheet material, discloses the use of multiple blades spaced apart from one another on both sides of the web for placement of a polymer composition into a porous web.

Therefore, it would have been obvious to one of ordinary skill in the art to supply the apparatus of Caldwell et al., as taught in sections (1) and (2), above, with two or more blades spaced apart from one another motivated by the fact that Linscott teaches that such a method and apparatus results in distribution and removal of excess composition as desired by a suitable arrangement of wiper and scraper knives frictionally engaging the upper and lower faces of the sheet material (page 1, column 2, lines 25-28).

(4)

Claims 175-178 are rejected under 35 U.S.C. 103(a) as being unpatentable over the references as combined in section (3), above, in further view of Marteness.

Although the references as combined in section (3), above disclose an apparatus for the placement of a polymer composition into a porous web with two or more blades determinedly spaced apart from one another, they do not specifically disclose that the blades may be vibrated during coating.

However, it would have been obvious to one of ordinary skill in the art to vibrate the coating knives or blades during coating motivated by the fact that Marteness, in his method and apparatus for the placement of a polymer composition into a porous web, teaches that a more uniform coating is obtained if the coating knife is vibrated (column 3, lines 48-49).

(4)

Claims 141, 166, 173, 174, 184, and 186 are rejected under 35 U.S.C. 103(a) as being unpatentable over the references as combined in section (3), above.

Although the references as combined in section (3), above disclose an apparatus for the placement of a polymer composition into a porous web, they do not specifically disclose that the web is transversely tensioned during coating and curing. They also do not specifically disclose, as per

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applicant claims 173 and 174, that the resonance of the coating blades is dampened or that, as per applicant claims 141 and 166, that the blades have a specific finish or are heated during application.

However, it would have been obvious to one of ordinary skill in the art to provide the web being coated in either a longitudinally and/or transversely tensioned manner during coating and curing motivated by the fact that such tensioning would, in-part, determine the degree to which the polymer impregnates the web during coating and the degree of openness or porosity of the finished web.

It would have been obvious to one of ordinary skill in the art to supply the coating knives with resonance dampening motivated by the fact that resonance dampening avoids blade chattering which can result in inconsistent coating and the formation of ripples.

Finally, it would have been obvious to one of ordinary skill in the art to supply the coating knives with any finish as well as preferentially heating or cooling the knives during coating motivated by the fact that such knife parameters, in part, determine the viscosity of the polymer as it is placed within the web. That is, the knife finish would effect the shear rate and thus the viscosity of the polymer during coating while the knife temperature would effect to viscosity of the polymer by the equation below:

$$\eta = Ae^{-(E/RT)}$$

where:

η = viscosity

A = constant

E = activation energy for viscous flow

R = gas constant

T = temperature

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(5)

Response to Amendments and Arguments

In response to the amendments and arguments filed August 25, 1999, a new grounds of rejection has been set forth. In the first office action, the apparatus limitations dealing with the shear-thinnable polymer and the specific make-up of the porous web were given weight. In doing so, the reference to Billmeyer, Jr. was combined with the teachings of Caldwell et al. to obviate these limitations. In the amendments filed in response to the first office action, the applicant has attempted to further differentiate the instant apparatus over that taught by the references as combined in the first office action by designating the polymer composition a "shear thinnable polymer composition".

However, on further consideration, the examiner has come to the conclusion that the limitations drawn to the polymer and the porous web are work piece limitations. Because the work piece itself is not germane to the patentability of the apparatus itself, the rejection, as set forth in the first office action mailed May 26, 1999, has been modified by removing the Billmeyer, Jr. reference. The work piece limitations have been given no patentable weight in the instant rejection. Therefore, applicant's arguments with respect to the claims to which the Billmeyer, Jr. reference was applied have been considered but are moot in view of the new ground(s) of rejection.

(6)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patent Examiner Jerry Lorengo whose telephone number is (703) 306-9172. The applicant should note that official communications regarding the instant application may be forwarded directly to the examiner via facsimile at (703) 305-7115.

JAL
November 8, 1999



**RICHARD CRISPINO
PRIMARY EXAMINER**